

In the claims:

1. (Original). A monoclonal antibody that is capable of binding specifically to wild-type HBsAg and to at least two mutant forms of HBsAg.
2. (Previously Presented). A monoclonal antibody as claimed in claim 1, wherein at least one of said two mutant forms of HBsAg has at least one amino acid substitution relative to wild type HBsAg.
3. (Previously Presented). A monoclonal antibody as claimed in claim 1, wherein at least one of said two mutant forms of HBsAg has the sequence of HBsAg present in an HBV escape mutant.
4. (Currently Amended). A monoclonal antibody as claimed in claim 1, wherein at least one of said two mutant forms of HBsAg has at least one amino acid substitution in the "a" determinant ~~or in the region of the "a" determinant~~.
5. (Previously Presented). A monoclonal antibody as claimed in claim 2, wherein an amino acid substitution results from a point mutation.
6. (Currently Amended). A monoclonal antibody as claimed in claim 1, wherein at least one of said two mutant forms of HBsAg has an amino acid substitution within ~~the sequence encoding amino acids 133 to 145 of HBsAg~~ the sequence comprising amino acids 133 to 145 of HBsAg.
7. (Cancelled).
8. (Withdrawn). A monoclonal antibody as claimed in claim 7, wherein the substitution is at any one or more of positions 143, 144 and 145.

9. (Withdrawn). A monoclonal antibody as claimed in claim 7, wherein the substitution is at any one or more of positions 143, 144 and 145.

10. (Currently Amended). A monoclonal antibody as claimed in claim 1, wherein at least one of said two mutant forms of HBsAg is selected from the group consisting of:

(a) Mutant HBsAg I ("~~NSNP~~" HBsAg): met to ile at amino acid 133; phe to his amino acid 134; and asp to val at amino acid 144;

(b) Mutant HBsAg II ("MAM" HBsAg): met to ile at amino acid 133; phe to asn at amino acid 134; pro to ser at amino acid 142; ser to leu at amino acid 143;

and gly to lys at amino acid 145;

(c) Mutant HBsAg III ("SZ" HBsAg): gly to arg at amino acid 145; and

(d) Mutant HBsAg IV ("SP" HBsAg): ser to met at amino acid 143.

11. (Cancelled).

12. (Previously Presented). A monoclonal antibody as claimed in claim 1 that is an IgG, IgM or IgA immunoglobulin.

13. (Original). Monoclonal antibody P2D3 as produced by the hybridoma designated P2D3 and deposited at the ECACC under accession number ECACC 97042331.

14. (Original). Monoclonal antibody M3A10 as produced by the hybridoma designated M3A10 and deposited at the ECACC under accession number ECACC 97042330.

15. (Original). Monoclonal antibody M4F5 as produced by the hybridoma designated M4F5 and deposited at the ECACC under accession number ECACC 97042519.

16. (Previously Presented). A monoclonal antibody as claimed in claim 1, in a humanized form.

17. (Withdrawn). A fragment or a derivative of a monoclonal antibody as claimed in claim 1.

18. (Withdrawn). A method of producing a hybridoma capable of producing a monoclonal antibody as claimed in claim 1, which comprises immunizing an animal with wild type HBsAg or a mutant form of HBsAg antigen, optionally in the form of an appropriate antigenic fragment or derivative thereof, immortalizing antibody producing cells to form hybridomas, screening the hybridoma cultures against wild type HBsAg and two or more mutant forms of HBsAg, optionally in the form of an appropriate antigenic fragment or derivative thereof, and selecting those hybridomas that produce antibodies that bind to wild type HBsAg and two or more mutant forms of HBsAg.

19. (Cancelled).

20. (Withdrawn). A hybridoma capable of producing a monoclonal antibody as claimed in claim 1.

21. (Withdrawn). Hybridoma designated P2D3 and deposited at the ECACC under accession number ECACC 97042331.

22. (Withdrawn). Hybridoma designed M3A10 and deposited at the ECACC under accession number ECACC 97042330.

23. (Withdrawn). Hybridoma designated M4F5 and deposited at the ECACC under accession number ECACC 97042519.

24. (Cancelled).

25. (Cancelled).

26. (Withdrawn). An immunoassay for the detection of HBsAg, which comprises contacting a sample under investigation with a monoclonal antibody as claimed in claim 1 or a fragment or derivative thereof, or a combination of two or more thereof, and detecting any resulting antigen-antibody complex.

27. (Cancelled).

28. (Withdrawn). An immunoassay as claimed in claim 26, in a homogenous or heterogeneous format.

29. (Withdrawn). An immunoassay as claimed in claim 26, in a capture or a competitive format.

30. (Withdrawn). An immunoassay as claimed in claim 26, wherein an immunoassay for the detection of antibodies to hepatitis B core protein (HBc) is carried out simultaneously with the assay for HBsAg.

31. (Withdrawn). An immunoassay kit that comprises a monoclonal antibody as claimed in claim 1 or a fragment or derivative thereof, or a combination of two or more thereof, and other reagents required for carrying out

an immunoassay for HBsAg and optionally also reagents for detecting anti-HBc antibodies.

32. (Cancelled).

33. (Cancelled).

34. (Cancelled).

35. (Cancelled).

36. (Cancelled).

37. (Cancelled).

38. (Withdrawn). A composition suitable for use therapeutically or prophylactically for passive immunization against HBV which comprises a monoclonal antibody as claimed in claim 1, or a fragment or derivative thereof, or a combination of two or more thereof, in admixture with a pharmaceutically suitable carrier.

39. (Cancelled).

40. (Withdrawn). A method of therapeutic or prophylactic passive immunization against HBV infection, which comprises administering to a subject a therapeutically or prophylactically effective amount of a monoclonal antibody as claimed in claim 1, or a fragment or derivative thereof, or a combination of two or more thereof.

41. (Cancelled).

42. (Withdrawn). An anti-idiotypic antibody to a monoclonal antibody as claimed in claim 1 or a fragment or derivative thereof.

43. (Withdrawn). Isolated Mutant HBsAG I, Mutant HBsAG II, Mutant HBsAG III or Mutant HBsAG IV as defined in claim 10.

44. (Cancelled).

45. (Cancelled).

46. (Cancelled).

47. (Cancelled).

48. (Cancelled).

49. (Cancelled).

50. (Cancelled).

51. (Cancelled).

52. (Cancelled).

53. (Cancelled).

54. (Cancelled).

55. (Cancelled).

56. (Cancelled).

57. (Cancelled).

58. (Cancelled).

59. (Previously Presented). The monoclonal antibody of claim 1, wherein at least one of said two mutant forms of HBsAg has the sequence of HBsAg present in an HBV escape mutant.

60. (Currently Amended). The monoclonal antibody of claim 2, wherein said amino acid substitution is in the "a" determinant ~~or in the region of the "a"~~ determinant.

61. (Currently Amended). The monoclonal antibody of claim 3, wherein said sequence of HBsAg present in an HBV escape mutant has at least one amino acid substitution in the "a" determinant ~~or in the region of the "a"~~ determinant.

62. (Currently Amended). The monoclonal antibody of claim 59, wherein said sequence of HBsAg present in an HBV escape mutant has at least one amino acid substitution in the "a" determinant ~~or in the region of the "a"~~ determinant.

63. (Currently Amended). The monoclonal antibody of claim 2, wherein said amino acid substitution is within the sequence ~~encoding~~ comprising amino acids 133 to 145 of HBsAg.

64. (Currently Amended). The monoclonal antibody of claim 3, wherein said sequence of HBsAg present in an HBV escape mutant has an amino acid substitution within the sequence ~~encoding~~ comprising amino acids 133 to 145 of HBsAg.

65. (Currently Amended). The monoclonal antibody of claim 4, wherein said amino acid substitution is within the sequence ~~encoding~~ comprising amino acids 133 to 145 of HBsAg.

66. (Currently Amended). The monoclonal antibody of claim 5, wherein a mutant HBsAg has an amino acid substitution within the sequence ~~encoding~~ comprising amino acids 133 to 145 of HBsAg.

67. (Currently Amended). The monoclonal antibody of claim 59, wherein said sequence of HBsAg present in an HBV escape mutant has an amino acid substitution within the sequence ~~encoding~~ comprising amino acids 133 to 145 of HBsAg.

68. (Currently Amended). The monoclonal antibody of claim 60, wherein said amino acid substitution is within the sequence ~~encoding~~ comprising amino acids 133 to 145 of HBsAg.

69. (Currently Amended). The monoclonal antibody of claim 61, wherein said amino acid substitution is within the sequence ~~encoding~~ comprising amino acids 133 to 145 of HBsAg.

70. (Currently Amended). The monoclonal antibody of claim 62, wherein said amino acid substitution is within the sequence ~~encoding~~ comprising amino acids of 133 to 145 of HBsAg.

71. (Previously Presented). The monoclonal antibody of claim 2 that is an IgG, IgM or IgA immunoglobulin.

72. (Previously Presented). The monoclonal antibody of claim 3 that is an IgG, IgM or IgA immunoglobulin.



73. (Previously Presented). The monoclonal antibody of claim 4 that is an IgG, IgM or IgA immunoglobulin.

74. (Previously Presented). The monoclonal antibody of claim 5 that is an IgG, IgM or IgA immunoglobulin.

75. (Previously Presented). The monoclonal antibody of claim 6 that is an IgG, IgM or IgA immunoglobulin.

76. (Previously Presented). The monoclonal antibody of claim 2, in a humanized form.

77. (Previously Presented). The monoclonal antibody of claim 3, in a humanized form.

78. (Previously Presented). The monoclonal antibody of claim 4, in a humanized form.

79. (Previously Presented). The monoclonal antibody of claim 5, in a humanized form.

80. (Previously Presented). The monoclonal antibody of claim 6, in a humanized form.

81. (Withdrawn). A fragment or a derivative of the monoclonal antibody of claim 2.

82. (Withdrawn). A fragment or a derivative of the monoclonal antibody of claim 3.

83. (Withdrawn). A fragment or a derivative of the monoclonal antibody of claim 4.

84. (Withdrawn). A fragment or a derivative of the monoclonal antibody of claim 5.

85. (Withdrawn). A fragment or a derivative of the monoclonal antibody of claim 6.

86. (Withdrawn). A hybridoma which produces the monoclonal antibody of claim 2.

87. (Withdrawn). A hybridoma which produces the monoclonal antibody of claim 3.

88. (Withdrawn). A hybridoma which produces the monoclonal antibody of claim 4.

89. (Withdrawn). A hybridoma which produces the monoclonal antibody of claim 5.

90. (Withdrawn). A hybridoma which produces the monoclonal antibody of claim 6.

91. (Withdrawn). An immunoassay for the detection of HBsAg, which comprises contacting a sample with the monoclonal antibody of claim 2 or a fragment or derivative thereof or a combination of two or more thereof, and detecting any resulting antigen-antibody complex.

92. (Withdrawn). An immunoassay for the detection of HBsAg, which comprises contacting a sample with the monoclonal antibody of claim 3 or

fragment or derivative thereof or a combination of two or more thereof, and detecting any resulting antigen-antibody complex.

93. (Withdrawn). An immunoassay for the detection of HBsAg, which comprises contacting a sample with the monoclonal antibody of claim 4 or fragment or derivative thereof or a combination of two or more thereof, and detecting any resulting antigen-antibody complex.

94. (Withdrawn). An immunoassay for the detection of HBsAg, which comprises contacting a sample with a monoclonal antibody of claim 5 or fragment or derivative thereof or a combination of two or more thereof, and detecting any resulting antigen-antibody complex.

95. (Withdrawn). An immunoassay for the detection of HBsAg, which comprises contacting a sample with a monoclonal antibody of claim 6 or fragment or derivative thereof or a combination of two or more thereof, and detecting any resulting antigen-antibody complex.

96. (Newly Added). A monoclonal antibody that binds specifically to wild-type HBsAg and to at least two mutant forms of HBsAg.

97. (Newly Added). A monoclonal antibody that binds specifically to wildtype HBsAg and to at least one mutant HBsAg carrying an "a" determinant coded for by sequences having a point mutation at any one or more of the codons encoding amino acids 143 and 144.